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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,922	02/23/2004	Shyng-Tsong Chen	20140-00262-US1	7529
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CONNOLLY BOVE LODGE & HUTZ LLP			STACOVICI, STEFAN	
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DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,922

Applicant(s)

CHEN ET AL.

Examiner

Stefan Staicovici

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 14-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/23/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 14-18 in the reply filed on January 3, 2005 is acknowledged. Applicants argue that "since Group I and Group I both include claim 18" then "an examination of one set of claims will require a search in the classes common to the same technology area" (see page 2 of the election filed 1/3/2005). In response, it is noted that the insertion of claim 18 in both Groups I and II is an obvious typographical error because a reading of the claims shows that Groups I and II are drawn to different inventions. In order to advance prosecution of the instant application the restriction requirement mailed 12/01/2004 is withdrawn and a new restriction requirement is made below.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 14-18, drawn to a molding process, classified in class 264, subclass 257.
- II. Claims 19-24, drawn to a process of polishing a surface, classified in class 451, subclass 41.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions of Group I and II are related as process of making and process of using the product. The use as claimed cannot be practiced with a materially different product. Since the product is not allowable, restriction is proper between said method of making and method of using. The product claim will be examined along with the elected invention (MPEP § 806.05(i)).

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The disclosure is objected to because of the following informalities: references to US patent applications (see page 1 of the instant disclosure) should be updated and include a statement of ownership. Appropriate correction is required.

7. The abstract of the disclosure is objected to because the abstract should be a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. As such, in the instant application the abstract should describe a process for making a polishing pad. Correction is required. See MPEP § 608.01(b).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 14-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19-20 of copending Application No. 10/816,882. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 19-20 of copending Application No. 10/816,882 teach the basic claimed process of making a polishing pad including, providing a mold having a cavity, introducing fibers into said mold cavity, the loose fibers defining interstices, introducing polymerization reactants into said mold cavity, applying a differential pressure across said mold cavity thereby causing said reactants to substantially fill said interstices; effecting at least a partial cure of said reactants to form a polymer matrix and abrading said matrix from at least one major surface of said pad thereby forming a fibrous mat of fibers having a free length on said major surface, wherein said free length is up to 2 mils.

Regarding claims 14-16, although claims 19-20 of copending Application No. 10/816,882 teach curing, claims 19-20 of copending Application No. 10/816,882 do not teach heating. However, it is well known to heat in order to reduce curing time. Therefore, it would

have been obvious for one of ordinary skill in the art to have used heating to cure the resin in the process of claims 19-20 of copending Application No. 10/816,882 because it is known that heating reduces the curing time, hence increasing productivity.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claim 17 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19-20 of copending Application No. 10/816,882 in view of McCartney (US Patent No. 4,511,605).

Claims 19-20 of copending Application No. 10/816,882 teach the basic claimed process as described above.

Regarding claim 17, although claims 19-20 of copending Application No. 10/816,882 teach fibers, claims 19-20 of copending Application No. 10/816,882 do not teach a web formed by needling said fabric. However, needling a non-woven fabric is well known as evidenced by McCartney ('605) who teaches the use of a needled non-woven fabric for making a polishing pad (see col. 2, lines 17-25). Therefore, it would have been obvious for one of ordinary skill in the art to have used a needling process as taught by McCartney ('605) to make a web in the process of claims 19-20 of copending Application No. 10/816,882 because of known advantages that needling provides such as simplicity, reduced costs, availability, etc.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 14 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Pecen *et al.* (US Patent No. 6,108,091).

Pecen *et al.* ('091) teach the claimed process for making a polishing pad including, providing a mold, placing a woven fabric (weaved fabric defining interstices between individual yarns) into said mold, pouring a polyurethane resin under a vacuum (differential pressure) into said mold, baking and curing (heating) said resin to embed said woven fabric into said polyurethane resin and form said polishing pad (see col. 9, lines 9-29). It is submitted that a woven fabric includes interstices that are completely penetrated by said polyurethane resin prior to its curing in order for said fabric to be embedded into a polishing pad structure.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anjur *et al.* (US Patent No. 6,117,000) in view of Pecen *et al.* (US Patent No. 6,108,091).

Anjur *et al.* ('000) teach the basic claimed process for making a polishing pad including, impregnating a non-woven fabric with a polyurethane resin and curing (heating) said resin to form said polishing pad (see col. 1, lines 57-65). It is submitted that curing process includes heating. Further, it is submitted that a non-woven fabric includes interstices that are completely penetrated by said polyurethane resin prior to its curing in order for said fabric to be embedded into a polishing pad structure.

Regarding claim 14, although Anjur *et al.* ('000) teach impregnating a fabric with resin, Anjur *et al.* ('000) do not specifically teach impregnating said fabric by applying a differential pressure across a mold cavity. Pecen *et al.* ('091) teach a process for making a polishing pad including, providing a mold, placing a fabric (fabric defining interstices between individual yarns) into said mold, pouring a polyurethane resin under a vacuum (differential pressure) into said mold, baking and curing (heating) said resin to embed said woven fabric into said polyurethane resin and form said polishing pad (see col. 9, lines 9-29). Therefore, it would have been obvious for one of ordinary skill in the art to have impregnated a fabric by applying a differential pressure across a mold cavity as taught by Pecen *et al.* ('091) in the process of Anjur *et al.* ('000) because of a variety of advantages that vacuum impregnation provides such as uniform impregnation, reduced processing time, etc. and also because, Anjur *et al.* ('000) requires impregnating a fabric with resin, whereas Pecen *et al.* ('091) teach that such impregnation is performed by applying a differential pressure across a mold cavity.

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anjur *et al.* (US Patent No. 6,117,000) in view of Pecen *et al.* (US Patent No. 6,108,091) and in further view of McCartney (US Patent No. 4,511,605).

Anjur *et al.* ('000) in view of Pecen *et al.* ('091) teach the basic claimed process as described above.

Regarding claim 17, although Anjur *et al.* ('000) teach a non-woven fabric, Anjur *et al.* ('000) do not teach needling said fabric. However, needling a non-woven fabric is well known as evidenced by McCartney ('605) who teaches the use of a needled non-woven fabric for making a polishing pad (see col. 2, lines 17-25). Therefore, it would have been obvious for one of ordinary skill in the art to have used a needling process as taught by McCartney ('605) to make the non-woven fabric in the process of Anjur *et al.* ('000) in view of Pecen *et al.* ('091) because of known advantages that needling provides such as simplicity, reduced costs, availability and also because, Anjur *et al.* ('000) requires a non-woven fabric, whereas McCartney ('605) teaches that a non-woven fabric is obtained by needling.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anjur *et al.* (US Patent No. 6,117,000) in view of Pecen *et al.* (US Patent No. 6,108,091) and in further view of McCartney (US Patent No. 4,511,605) and Merchant *et al.* (US Patent No. 6,368,200 B1).

Anjur *et al.* ('000) in view of Pecen *et al.* ('091) and in further view of McCartney ('605) teach the basic claimed process as described above.

Regarding claim 18, although Anjur *et al.* ('000) teach a fabric, Anjur *et al.* ('000) in view of Pecen *et al.* ('091) and in further view of McCartney ('605) do not teach a non-woven

fabric having a thickness of about 50-100 mils. However, because the fabric is embedded in the resin, the thickness of the polishing pad is at least 50-100 mils. As such, a polishing pad having a thickness of 50-10 mils is well known as evidenced by Merchant *et al.* ('200) who teach a polishing pad having a thickness of 50-100 mils (see col. 4, lines 1-3). Therefore, it would have been obvious for one of ordinary skill in the art to have formed a polishing pad having a thickness of 50-10 mils as taught by Merchant *et al.* ('200) using the process of Anjur *et al.* ('000) in view of Pecen *et al.* ('091) and in further view of McCartney ('605) because such dimensions are well known to be optimum for polishing needs, hence providing for an improved product. It is submitted that the thickness of non-woven fabric is reduced by heat and pressure during curing of the impregnating resin due to the lack of resistance in the Z-direction that characterizes a non-woven fabric. Hence, the amount of compression of a non-woven fabric is a result effective variable. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Therefore, it would have been obvious for one of ordinary skill in the art to have used routine experimentation to determine the optimum heat and pressure conditions in the process of Anjur *et al.* ('000) in view of Pecen *et al.* ('091) and in further view of McCartney ('605) and Merchant *et al.* ('200) such that the thickness is reduced by about 10-20% because Anjur *et al.* ('000) teaches a non-woven fabric and the thickness of non-woven fabric is reduced by heat and pressure during curing of the impregnating resin due to the lack of resistance in the Z-direction that characterizes said non-woven fabric.

Allowable Subject Matter

17. Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if the Obvious Double Patenting rejection is overcome and are rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest a process for making a polishing pad including, buffing at least one side of said cured pad with an abrasive device for fracturing and removing a portion of said polymer to form a polishing layer of free fibers being embedded in un-fractured matrix polymer of said body adjacent to said polishing layer and also include the limitations of any intervening claim.

19. It is noted that under MPEP 804.01 a terminal disclaimer is required to avoid a double patenting rejection when the product claim and the process claim are not consonant with the restriction requirement such that the process claim is commensurate in scope with the allowed product claim. *See, In re Ochiai*, 37 USPQ2d 1127 and *In re Brouwer*, 37 USPQ2d 1662.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



3/1/05

Primary Examiner

AU 1732

March 1, 2005